

自动化

# 基于电流信号包络线故障熵的超高压输电系统振荡中再故障识别算法

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摘要

针对超高压输电系统振荡对距离保护的影响, 提出一种用互差 $2\pi/3$ 电角度的三点电流瞬时值提取三相电流包络线的近似算法, 在此基础上利用各相电流包络线故障熵的差值变化特征来识别输电系统振荡中的再故障情况, 使得距离保护的振荡闭锁装置能够在系统故障时及时开放保护。仿真实验表明该算法在纯振荡情况下可靠不误动, 并且可以快速有效地识别系统振荡中发生的各种故障。该算法实现方便, 计算量小, 具有工程实用价值。

关键词 [振荡闭锁](#) [距离保护](#) [电流波形包络线](#) [故障熵](#)

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## A Recognition Algorithm for Fault Occurred during Oscillation of UHVAC Power Transmission System Based on Fault Entropy of Current Signal Envelops

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Abstract

To eliminate the impact of UHVAC power transmission system oscillation on distance protection, an approximate algorithm, which uses instantaneous values of currents at three points that differ one another by electric angle of  $2\pi/3$  to extract the envelops of three-phase currents, is proposed. On this basis, by use of variation characteristics of fault entropy difference of current envelop of each phase, the fault that occurs even as UHVAC power transmission system fallen into oscillation can be recognized and then the distance protection blocked by swing block circuit can be unblocked in time while above-mentioned fault occurs. Simulation experiments show that the proposed algorithm can reliably prevent misoperation of protection during pure oscillation process and can recognize various faults occurred during power transmission system oscillation fast and effectively. The proposed algorithm is easy to implement and its calculation burden is light, so it is practicable in engineering.

Key words [oscillation lockout](#) [distance protection](#) [envelope of current waveform](#) [fault entropy](#)

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